



WASHINGTON STATE DEPARTMENT OF ECOLOGY
EASTERN REGIONAL OFFICE
4601 NORTH MONROE
SPOKANE, WASHINGTON 99205-1295

FINAL STATEMENT OF BASIS
FOR
AIR OPERATING PERMIT NUMBER 03AQER-5909
PUBLIC UTILITY DISTRICT NO. 2 OF GRANT COUNTY – EPHRATA
RANDOLPH ROAD SUBSTATION GENERATORS
NEAR
MOSES LAKE, WASHINGTON

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LIST OF ABBREVIATIONS

AOP	Air Operating Permit
BACT	Best Available Control Technology
bhp	Brake Horsepower
BTU	British Thermal Units
°C	Degrees Celsius
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	Carbon Monoxide
dscfm	Dry Standard Cubic Foot per Minute
Ecology	Washington State Department of Ecology
E.I.T.	Engineer in Training
EPA	United States Environmental Protection Agency
°F	Degrees Fahrenheit
FCAA	Federal Clean Air Act
ft ³	Cubic foot
gr/dscf	Grain per dry standard cubic foot
hr	Hour
MMBTU	Million British Thermal Units
MRRR	Monitoring, Recordkeeping, and Reporting Requirement
MVAC	Motor Vehicle Air Conditioner
N ₂	Nitrogen gas
NOC	Notice of Construction
NO _x	Oxides of Nitrogen
NSPS	New Source Performance Standard
O ₂	Oxygen
O&M	Operation & Maintenance
P.E.	Professional Engineer
PM	Particulate Matter
PM-10	Particulate Matter with aerodynamic diameter ≤ 10 micrometers
ppm	Parts per million
QIP	Quality Improvement Plan
PSD	Prevention of Significant Deterioration
PUD	Public Utility District
RACT	Reasonably Available Control Technology
RCW	Revised Code of Washington
RM	EPA Reference Method from 40 CFR Part 60, Appendix A
scfm	Standard Cubic Feet per Minute
SCR	Selective Catalytic Reduction
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
TAP	Toxic Air Pollutant
TPY	Tons Per Year
VOC	Volatile Organic Compound
WAC	Washington Administrative Code
yr	Year

Caterpillar Diesel Electric Generators – Estimated Actual Emissions in Tons Per Year (tpy)¹

Emission Units	PM-10	CO	NO _x	SO ₂	VOC
Individual Generator	1.53	5.59	10.6	1.98	0.03
Overall Site Total (20 Generators)	30.6	111.8	211.7	39.6	0.64

1.0 Introduction

This document sets forth the legal and factual basis for the permit conditions in a FINAL AOP issued by the State of Washington Department of Ecology for a diesel electricity generating substation located near the town of Moses Lake, Washington in Grant County. This document is called a “statement of basis” and is required by Washington State regulations [chapter 173-401 WAC]. A statement of basis does not contain enforceable permit conditions. Enforceable permit conditions are contained in the AOP itself.

2.0 Facility Identifying Information

- 2.1 Company or Organization Name-----Public Utility District No. 2 of Grant County
2.2 Facility Name -----Randolph Road Substation – Moses Lake
2.3 Unified Business Identification Number----- 132-001-075
2.4 Facility Address -----Intersection of Randolph Road and Tyndall Road in Moses Lake
2.5 Responsible Official ----- Mr. Don Godard, Manager
Mailing Address ----- P.O. Box 878, Ephrata, Washington 98823
2.6 Facility Contact----- Mr. Cliff Sears, Regulatory Compliance Coordinator
2.7 Facility Contact Phone Number----- (509) 754-6612

3.0 Basis for Title V Applicability

Public Utility District No. 2 of Grant County, Randolph Road Substation – Moses Lake, is subject to Title V, Air Operating Permit Regulations, due to the emissions of oxides of nitrogen (NO_x) and carbon monoxide (CO) in excess of 100 tons per year. WAC 173-401-200(17)(b) identifies any source that directly emits or has the potential to emit one hundred tpy or more of any air pollutant as a major source. Major sources are required to obtain Title V permits under 173-401-300(1)(a)(i).

4.0 Attainment Classification

The facility is located in an area that is classified as attainment for all criteria pollutants as of June 2003.

5.0 Title V Facility Timeline

- 5.1 July 15, 2002-----AOP Application Determined to be Complete
5.2 July 29, 2003----- Draft Permit Issued
5.3 August 10, 2003 -----Public Comment Period Begins
5.4 September 10, 2003 ----- Public Comment Period Ends
5.5 October 28, 2003 ----- EPA Review Period Begins
5.6 December 11, 2003 -----EPA Review Period Ends
5.7 December 12, 2003 ----- Final Permit Issued (Order No. 03AQER-5909)

¹ Values based on March 19-20 source test results, fuel sulfur content and fuel usage limitation.

5.8 January 1, 2004 ----- Order No. 03AQER-5909 Effective Date

5.9 January 1, 2009 ----- Order No. 03AQER-5909 Expiration Date

6.0 Facility Description

The Randolph Road Diesel Electric Generation Facility consists of twenty (20) diesel electric generators with a combined capacity of approximately 32 megawatts. It is located across Randolph Road from the Grant PUD Randolph Road substation at the Grant County International Airport. It consists of 20, 40 foot pad-mounted truck trailers containing generators, air pollution control equipment and support equipment. A site plan is enclosed as Appendix A which shows the layout of the units at the substation, the access roads, office, and the fuel and urea storage tanks.

Each generator is a Caterpillar model 3516B engine, which is their 16 cylinder low NO_x model continuous power generator. This unit is certified as a Tier 1 non-road engine under USEPA procedures. It runs at 2377 bhp at continuous capacity with each unit generating 1640 kW. All the power generation and air pollution control equipment at the site were provided by Caterpillar. All emission rate guarantees are by Caterpillar.

The engines will consume 0.05% low sulfur fuel oil. The SCR's will consume urea. Although the total operating hours of the facility are limited by limiting the total amount of fuel oil to be burned in a year, the facility is expected to be able to operate 24 hours per day, 7 days per week when it is required to operate.

7.0 Insignificant Emission Units and Activities

7.1 The following emission units have been designated as categorically insignificant as described.

7.1.1 Each of the two lubricating oil tanks (6,000 gallons) – WAC 173-401-532(3).

7.2 The following emission units were proposed by the permittee in the Title V Application materials submitted to Ecology as insignificant. Ecology has determined that the units cannot be designated as insignificant emission units under Title V.

7.2.1 Each of the diesel electric generators for emissions of benzene, formaldehyde, acetaldehyde, and acrolein. The application proposes that the generators be established as IEU's for these pollutants based on actual emissions being estimated to be below the respective threshold established under WAC 173-401-531. However, WAC 173-401-530(1)(a) requires that in order for an emission unit to qualify as insignificant based on actual emissions, "actual emissions of all regulated air pollutants" must be less than the emission thresholds. WAC 173-401-530(4) establishes insignificance thresholds for several pollutants for which emissions from each diesel electric generator will far exceed the threshold.

8.0 Comments and Corresponding Responses

8.1 Comments received during the public comment period and EPA review period are on file at Ecology's Eastern Region Office in Spokane, along with Ecology's response to the comments.

9.0 Applicable and Inapplicable Requirements Determinations/Explanations

9.1 Initial or one-time NOC requirements that have not been included in the AOP as ongoing applicable requirements.

9.1.1 Order No. 02AQER-4912, Approval Condition 3.1, Within ninety (90) days of issuance of the construction Order, initial performance testing for NO_x, CO, PM-10, VOC, and NH₃ shall be performed on two (2) randomly chosen generator units at the electrical generating station.

- 9.1.1.1** Between January 7th and 10th 2003, the initial performance testing for units 9 East and 10 East was performed. However, the testing results indicated that the units were not meeting the emission limits for CO and PM. Subsequent performance testing was conducted on March 19-20, 2003. This testing again resulted in emissions of PM and CO above the limits imposed by Order No. 02AQER-4912. Upon further investigation, it was determined that the SCR control system was producing additional amounts of these two pollutants beyond that emitted by the engines. The emission limitations in the Order were subsequently modified upon request since the original emission limitations were written assuming that the catalyst system would have no impact on emissions of PM and CO.
- 9.1.2** Order No. 02AQER-4912, Approval Conditions 5, 8.2, A site specific O&M manual for the diesel electric generation facility shall be developed. The manual developed under Order No. 01AQER-2929 may be adopted to satisfy this requirement. Written notification that the O&M manual has been developed and completed shall be submitted within sixty (60) days after issuance of this Order.
- 9.1.2.1** Correspondence dated 2/7/03 was received by Ecology on 2/10/03 stating that the O&M manual developed to comply with Order No. 01AQER-2929 would be adopted as the manual to be used under Order No. 02AQER-4912 by 2/8/03.
- 9.2** The following NOC requirements clarified miscellaneous issues or included explanatory statements with regard to the applicable emission unit and were not, in actuality, approval conditions that require any action on the part of the permittee. These NOC requirements therefore have not been included in the AOP as ongoing applicable requirements.
- 9.2.1** Order No. 02AQER-4912 – Approval Condition 1, Administrative Order No. 01AQER-2929.
- 9.2.1.1** This approval condition states that Notice of Construction Order No. 02AQER-4912 supercedes Administrative Order No. 01AQER-2929. The Administrative Order was issued on June 4, 2001 and permitted temporary operation of the diesel electric generators.
- 9.2.2** Order No. 02AQER-4912 – Approval Condition 3.4, Startup exemption from emission limitations.
- 9.2.2.1** This approval condition states that the first ten minutes of operation of the electrical generating units is not subject to the emission limitations imposed by Order No. 02AQER-4912. This approval condition does not impose any requirements upon the permittee.
- 9.3** The following requirements were listed as applicable by the source, but have been found to be inapplicable by Ecology.
- 9.3.1** 40 CFR 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) – In the AOP application, the permittee referenced this part of the CFR as “Asbestos Program”. While the NESHAP’s do include specific requirements that apply to asbestos removal, this action is not among the normal operations conducted at the permittee’s facility. Due to this the asbestos removal requirements have not

been included in the AOP. The requirements continue to apply to any asbestos removal work done at the facility.

9.3.2 Chapter 173-406 WAC

Acid Rain Regulation – Were this regulation to stay effective, it would indeed apply to the permittee. However, Ecology has indicated that it plans to rescind the regulation in July 2003 and adopt the federal acid rain regulation by reference. This decision was made due to the fact that chapter 173-406 WAC is out of date with respect to the federal regulation.

10.0 Monitoring, Recordkeeping, and Reporting Requirement (MRRR) Sufficiency Explanations – The following section provides brief discussions regarding the reasoning behind the MRRR's included as part of the AOP. The criterion is that each MRRR must be sufficient to assure compliance with the associated condition, emission standard or work practice.

- 10.1 MRRR 1M** – This monitoring is used for conditions that require the source to maintain a certain status quo (e.g., O&M manual accessible to employees in operation of the equipment; maintaining replacement parts for routine repairs to monitoring equipment) and for conditions which require operation consistent with specific documents (e.g., O&M manual, construction permit application). To assure compliance with these provisions, the permittee is simply required to check that there has been no change in the status quo. Since such a change is unlikely, an annual evaluation was deemed adequate. The monitoring has been designed to also require periodic reviews of Operation and Maintenance manuals and other documents in order to evaluate whether current operational practices are being conducted in a manner consistent with the information upon which permitting has been based. The recordkeeping and reporting required ensure that practices which are not consistent with the submitted information will be addressed in a timely manner.
- 10.2 MRRR 2M** – This MRRR was designed to provide sufficient response to complaints regarding facility emissions and odors affecting the landowners neighboring or in the affected vicinity of the facility. Timeframes were chosen to provide the permittee with adequate time to respond appropriately as well as ensuring that complaints not go unnoticed.
- 10.3 MRRR 3M** – The monitoring has been designed to require periodic monthly visible emission testing and walk-around surveys as the most simple and direct method to determine the presence of excess emissions. These surveys, in conjunction with a good faith effort on the part of the permittee to operate in accordance with the conditions of the AOP, are considered sufficient monitoring.
- 10.4 MRRR 4M** – The monitoring as specified has been designed based on the condition that all associated equipment is maintained in proper working condition. Using emission factors in conjunction with operational parameters is a feasible method of estimating emissions from an emission unit for which performance testing has been performed in the past.
- 10.5 MRRR 5M** – This monitoring has been specified to rely on periodic source testing in order to gain a reasonable assurance of compliance with the various pollutant limits that apply to the units. Source testing is the most reliable method for determining emissions, and due to the size of the emission units and the requirements that apply, testing is deemed reasonable.
- 10.6 MRRR 6M** – This MRRR establishes the minimum monitoring, recordkeeping and reporting information necessary for reasonable assurance of compliance with the appropriate requirements applicable to the diesel electric generators.

- 10.7** **MRRR 7M** – This MRRR establishes the minimum recordkeeping information necessary for reasonable assurance of compliance with the appropriate requirements applicable to the O&M manual for the diesel electric generators.
- 10.8** **MRRR 8M** – This monitoring has been specified to apply generally to units subject to Compliance Assurance Monitoring (CAM). The monitoring is included specifically as required by 40 CFR 64.
- 10.9** **MRRR 9M** – The monitoring described is specifically applicable to the diesel electric generators for the purposes of Compliance Assurance Monitoring (CAM). Compliance Assurance Monitoring must be designed to provide reasonable assurance of compliance with emission limitations or standards for the pollutant specific emission unit. In order for a pollutant specific emission unit (PSEU) to be subject to CAM, the three (3) conditions described below must be met. The manner in which they are met by the diesel electric generators is discussed below.
- 10.9.1** The PSEU must be subject to an emission limit for the applicable pollutant. The diesel electric generators are subject to multiple emissions limitations for nitrogen oxides (NO_x). These applicable requirements are included in Section 2 of the AOP.
- 10.9.2** The PSEU must utilize air pollution control equipment to reduce emissions of the applicable pollutant to a level that meets the established emission limit(s). In the case of the diesel electric generators, the emissions of NO_x are controlled by SCR with urea injection.
- 10.9.3** The PSEU must have pre-controlled emissions of the specific pollutant that meet or exceed the major source thresholds established in WAC 173-401-200(17). In the case of the diesel electric generators, the pre-controlled emissions of NO_x each pollutant have been calculated to be 194 tons per year (tpy). This exceeds the major source threshold of 100 tpy established in WAC 173-401-200(17).

The proposed CAM monitoring has been designed to rely on urea flowrate (gallons per hour), differential pressure across the catalyst (inches water column), and exhaust gas temperature (°F). Data for these parameters will be recorded and evaluated with respect to the acceptable ranges at least once per day. Additionally, direct emission testing for NO_x using a portable gas analyzer will be performed on a less frequent basis. This testing will enable direct comparison with respect to the allowable NO_x emission limits.

NO_x emissions from the diesel electric generators are controlled using SCR with urea injection. NO_x is removed in the following manner: urea is injected into the exhaust gas stream, where it breaks down in the high temperature of the exhaust gas into ammonia. The ammonia reacts with the NO_x in the exhaust gases at active sites on the precious metal catalyst. The effectiveness of the SCR system changes very slowly with time if the urea is present in the correct amount and the exhaust gas temperature is above the minimum reaction temperature. Sulfur and other impurities (mostly metals) in the engine fuel slowly occupy active sites on the catalyst, eventually rendering it ineffective. The specific acceptable ranges for each operational parameter were determined based on the original manufacturer's design recommendations, data collected during source testing coupled with the results of the testing, as well as engineering judgment.

11.0 Clarifications and Interpretations

- 11.1** **Section 1 - Standard Conditions** – For permit conditions required by Washington State regulations that have been included in the SIP, two dates are given. The first date is the date for

the regulation that was adopted into the SIP. The second date is for the most up-to-date version of the regulation. State-only enforceable permit conditions are identified with the symbol (S).

- 11.2** WAC 173-401-620(1) – Washington State Acid Rain Provisions. The facility qualifies for a new unit exemption as defined in 40 CFR 72.7 and as discussed below. The referenced section of the WAC is out of date and is not accurate with respect to the Federal Acid Rain Program. Due to this, no permit conditions relating to the Washington State acid rain provisions have been included in the AOP.
- 11.3** Federal Acid Rain Program, 40 CFR Part 72 – As defined in 40 CFR 72.7(a), the permittee qualifies for the new units exemption from the federal acid rain program. The exemption depends on each utility unit meeting the following criteria; the unit serves a generator with total nameplate capacity of 25 MWe or less, and the unit burns gaseous fuel with an annual average sulfur content of 0.05% or less by weight. Each of the diesel electrical generating units at the Moses Lake facility serves its own generator, each of which has a total nameplate capacity of 1.6 MWe. The only fuel permitted to be burned at the facility is low-sulfur No. 2 distillate fuel oil with sulfur content of 0.05% or less by weight.
- 40 CFR 72.7(f)(2), and §(f)(3)(ii) provide further clarification of the applicability of the acid rain program. Section (f)(2) states that “For any period for which a unit is exempt under this section, the unit is not an affected unit under the Acid Rain Program and parts 70 and 71 of this chapter and is not eligible to be an opt-in source under part 74 of this chapter. As an unaffected unit, the unit shall continue to be subject to any other applicable requirements under parts 70 and 71 of this chapter.” Additionally, section (f)(3)(ii) states “The owners and operators bear the burden of proof that the requirements of paragraph (a) of this section are met.”
- 11.4** WAC 173-401-510(2)(h)(i) – Compliance Plan. At the time of permit issuance, no ongoing applicable requirements have been identified with which the permittee is not currently in compliance. However, this does not preclude Ecology from taking future action on past non-compliance.
- 11.5** Chapter 173-425 WAC, Open Burning – The requirements restricting open burning in the State of Washington apply to the source, and therefore Chapter 173-425 has been included as an applicable requirement under Section 2.1 Facility Wide Requirements.
- 11.6** Condition 2.1.1 of AOP, Visible Emissions – WAC 173-400-040(1), (1)(a), and (1)(b) restrict visible emissions from all sources of air emissions throughout the source to 20% opacity for no longer than three (3) minutes in any one hour. While it is clear from the time periods contained within the regulation that Ecology Method 9A (“Source Test Manual – Procedures for Compliance Testing”, State of Washington, Department of Ecology, 07/12/90) was the test method intended to be used to verify compliance, this permit has specified EPA Reference Method 9 as the test method utilized as part of MRRR 4M. Ecology has determined that reasonable assurance of compliance with the regulation may be obtained by conducting RM 9 upon observance of visible emissions, as specified within 4M.
- 11.7** Standard Condition 1.13.4, Emission Inventory – The requirements contained in this standard condition shall be met by the monitoring submittal requirements contained within the AOP provided sufficient emission information is provided.
- 11.8** MRRR 5M of AOP – The correction for oxygen content as prescribed by 5M should be performed according to the method outlined in 40 CFR 60 Appendix A, Reference Method 19.
- 11.9** Order No. 02AQER-4912, Issued 12/09/02, Approval Condition 3.3 – Emission estimate of sulfur oxide(s) – This approval condition specifies that emissions estimates of sulfur oxides be

for SO₂, while condition 4.7 limits emissions of SO_x. The AOP has clarified this apparent contradiction by requiring the permittee to submit emission estimates of SO_x rather than SO₂.

- 11.10** Acceptable Ranges for CAM Monitoring, 10M 1), b) – The 2/3 of the acceptable range referred to in this MRRR describes the variability of the readings as two-thirds of the entire range of the reading and not the central 2/3 of the range given. That is, if a reading is within the acceptable range it is acceptable. The variability is acceptable if overall it is less than 2/3 of the entire range.
- 11.11** Settlement Agreement, Order No. 02AQER-4906 – On October 25, 2002, Ecology issued the referenced Order to the permittee resolving issues relating to Ecology Notice of Violation No. 02AQER-4264 (June 25, 2002). The Notice of Violation addressed the receipt by Ecology of a Notice of Construction application for permanent installation of the generating station after the station had already been permitted for temporary operation via Ecology Administrative Order No. 01AQER-2929 (June 4, 2001). This settlement agreement called for the permittee to either make payment to Ecology in the amount of \$31,436.00 or to pursue a supplemental environmental project to be approved by Ecology. Ecology received payment in the above amount on October 20, 2003.

12.0 Appendix A – Randolph Road Substation Generators – Moses Lake, Facility Layout